REMARKS

Applicant respectfully requests reconsideration of the present application in view of the reasons that follow. Claims 36-65 are pending in this application.

I. Allowance of Claims 40, 41, 43-47, 55, 56, 58, 62, 63, and 65

Applicant thanks the Examiner for recognizing that Claims 40, 41, 43-47, 55, 56, 58, 62, 63, and 65 are allowable over the cited art. However, Applicant believes that the remaining claims are also allowable over the cited art as discussed below.

II. Rejection of Claims 36-38, 42, 48, 49, 51-53, 57, 59, 60, and 64 under 35 U.S.C. § 103(a)

In section 2 of the Office Action, Claims 36-38, 42, 48, 49, 51-53, 57, 59, 60, and 64 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Publication No. 2003/0202468 to Cain *et al.* (Cain 1) in view of U.S. Patent No. 7,281,057 to Cain (Cain 2). Applicant respectfully disagrees because Cain 1 and Cain 2, alone and in combination, fail to teach, suggest, or disclose all of the elements of at least independent Claims 36, 51, and 59.

A. Rejection of Claims 36, 51, and 59 under 35 U.S.C. § 103(a)

Independent Claim 1 recites in part:

> calculating a connectivity metric for a plurality of links defining each of a plurality of routes that connect a start node with an end node, ... wherein the calculated connectivity metric for a link of the plurality of links is determined based on the first type of node and the second type of node;

Independent Claims 51 and 59 recite a similar element.

On pages 3-4 of the Office Action, the Examiner states:

> Cain et al [Cain 1] do not specifically disclose wherein the calculated connectivity metric for a link of the plurality of links is determined based on the first type of node and the second type of node.

> Cain et al disclose in Table 1 (Section 0048) that available link capacity is the most important OoS parameter in determining the total QoS metric for a potential route. Cain [Cain 2] in U.S. Patent No. 7,281,057 discloses that a cluster leader node of an adjacent cluster could also serve as a cluster target node (ACTN), which would be advantageous **if** the cluster leader node has high link capacities (Column 13, lines 34-40). Furthermore, Cain et al in U.S. Publication No. 2003/0202468 disclose in Figure 9 that a cluster leader node 226 serves as the ACTN in the route to destination node 215. So, the QoS metrics is determined based on the first type of type [node] and the second type of node, because if either type of node is a leader, then it will have higher link capacities and will be chosen as the ACTN. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include wherein the calculated connectivity metric for a link of the plurality of links is determined based on the first type of node and the second type of node. One would have been motivated to do so since a cluster leader has higher link capacities and can route packets faster and more efficiently if placed in the route to the destination.

(Emphasis added through underlining and bolding). Applicant agrees that Cain 1 fails to teach, suggest, or describe "wherein the calculated connectivity metric for a link of the plurality of links is determined based on the first type of node and the second type of node" as recited in Claims 36, 51, and 59. Applicant, however, fails to understand how, even if "a cluster leader node of an adjacent cluster could also serve as a cluster target node," (Cain 2, col. 13, lines 35-37), this relates to or in any manner renders obvious "wherein the calculated connectivity metric for a link of the plurality of links is determined based on the first type of node and the second type of node" as stated by the Examiner. The Examiner misrepresents Cain 2 in stating "if either type of node is a leader, then it will have higher link capacities and will be chosen as the ACTN" and in stating that "a cluster leader has higher link capacities and can route packets faster and more efficiently if placed in the route to the destination." (Office Action, Pg. 4). Cain 2 in fact states that it "may be particularly advantageous **if** the cluster leader node has high link capacities" (col. 13, lines 37-39) clearly indicating that the cluster leader node may not have a high link capacity. Cain 2 further states that "it may be particularly advantageous to define the node-level routes to not include cluster leader nodes where possible, as this may help alleviate excessive traffic at the cluster leader nodes" (col.

14, lines 50-53; emphasis added through underlining) clearly indicating that it also may be disadvantageous to include a cluster leader node in a route.

Cain 2 describes a two level routing determination between a source node and a destination node. First, a cluster-level route is determined. (*See* col. 10, line 43-col. 12, line 44). Second, a node-level route is determined based on the cluster-level route determination. (*See* col. 13, line 3-col. 14, line 59). Relative to the cluster-level route determination, Cain 2 states:

> Once the source cluster leader node 21 collects all of the cluster leader node route replies corresponding to a given cluster leader node route request, it may then use the path metric of each delivery route to select the best route from among the delivery routes as the cluster-level route, at Block 54. Of course, in some embodiments the destination node 15 could select the best delivery route from among those available and only return the cluster leader node route reply along the best path to thereby determine the cluster-level route.
>
> In either event, once selected the best route may then be stored in a routing cache or table. By way of example, the path metric used to select the cluster-level route may be which delivery route includes the **least number of cluster leader nodes** (i.e., which one has includes the least number of clusters 12). Of course, other metrics, such as the QoS metrics noted above, may also be used.

(Col. 12, lines 17-33; emphasis added through underlining and bolding). Thus, the "metric" for determining a cluster-level route may be the least number of cluster leader nodes. Cain 2, however, fails to teach, suggest, or describe "calculating a connectivity metric for a plurality of links defining each of a plurality of routes that connect a start node with an end node, ... wherein the calculated connectivity metric for a link of the plurality of links is determined based on the first type of node and the second type of node" as recited in Claims 36, 51, and 59. Evaluating a number of cluster leader nodes in a delivery route does not teach or render obvious a connectivity metric determined between two nodes of a link "based on the first type of node and the second type of node" as recited in Claims 36, 51, and 59.

Relative to the node-level route, Cain 2 states:

> An algorithm may be used for selecting the best adjacent cluster target node in the adjacent cluster 25 based upon all of the adjacent cluster target node discovery responses received and based upon the metrics included therewith. Here again, the path metrics used may include the least number of hops, QoS parameters, etc., as similarly discussed above with respect to selection of the cluster level-route.
>
> The adjacent cluster target node 25 will preferably be **as close in distance to the source cluster 27, and have as a high a capacity, as is possible**. Also, it should be noted that a cluster leader node of an adjacent cluster could also serve as a cluster target node as well, which may be particularly advantageous **if** the cluster leader node has high link capacities.

(Col. 13, lines 25-39; emphasis added through underlining and bolding). Thus, the "metric" for determining a node-level route "may include the least number of hops, QoS parameters, etc." (col. 13, lines 29-30) and may or may not include a cluster leader node. Preferably, the adjacent cluster target node is "as close in distance to the source cluster 27, and ha[s] as ... high a capacity, as is possible" (Col. 13, lines 33-35) regardless of whether the node is a "cluster leader node" or a target node.

Cain 2 further states:

> As may be seen in FIG. 2, the various node-level routes along the cluster-level route **may or may not include cluster leader nodes**. In some embodiments, it may be particularly **advantageous** to define the node-level routes **to not include cluster leader nodes** where possible, as this may help alleviate excessive traffic at the cluster leader nodes. The node-level route discovery process could thus include using a metric for each potential route that signifies **whether the route will include a cluster leader node**, and the node requesting the route may then use this metric in its selection process, for example, as will be appreciated by those of skill in the art.

(Col. 14, lines 48-59; emphasis added through underlining and bolding). Thus, the node-level route may or may not include a "cluster leader node" as an option. Cain 2, however, fails to teach, suggest, or describe "calculating a connectivity metric for a plurality of links defining each of a plurality of routes that connect a start node with an end node, ... wherein the calculated connectivity metric for a link of the plurality of links is determined based on the

first type of node and the second type of node" as recited in Claims 36, 51, and 59. No connectivity metric is determined between two nodes of a link "based on the first type of node and the second type of node" as recited in Claims 36, 51, and 59. Existence of two different types of nodes in a network does not render obvious use of the type of node in the calculation of a connectivity metric. The only consideration of the type of node is whether or not to include a cluster leader node in a route at all.

Applicant respectfully submits that the Examiner has failed to demonstrate that Cain 1 and Cain 2, alone or in combination, teach, suggest, or disclose all of the elements of at least Claims 36, 51, and 59. Therefore, a prima facie case of obviousness has not been established. The remaining claims depend from one of Claims 36, 51, or 59. Therefore, Applicant respectfully requests withdrawal of the rejection of Claims 36-38, 42, 48, 49, 51-53, 57, 59, 60, and 64.

B. Rejection of Claims 42, 57, and 64 under 35 U.S.C. § 103(a)

Claims 42, 57, and 64 recite "determining the total connectivity metric of a route of the plurality of routes comprises identifying a maximum connectivity metric of the plurality of links defining the route." On page 5 of the Office Action, the Examiner states:

> Referring to claims 42, 57 and 64, Cain et al [Cain 1] disclose wherein determining the total connectivity metric of a route of the plurality of routes comprises identifying a maximum connectivity metric of the plurality of links defining the route. Based on the parameters of Table 1 (Section 0048), the QoS metrics for ACTN node selection is calculated for each potential route. This involves calculating the path with the maximum and minimum connectivity metric. Refer to Sections 0054-0056.

(Emphasis added through underlining). Applicant respectfully disagrees and submits that the Examiner again is misunderstanding the claim language. Whether or not Cain 1 teaches "calculating the path with the maximum and minimum connectivity metric," Cain 1 fails to teach, suggest, or describe "identifying a maximum connectivity metric of the plurality of links defining the route" as the total connectivity metric as recited in Claims 42, 57, and 64 with emphasis added through underlining. Calculating a maximum value for a path is not

"identifying a maximum connectivity metric of the plurality of links" as recited in Claims 42, 57, and 64.

As stated in Claims 36, 51, and 59 from which Claims 42, 57, and 64 depend, "the calculated connectivity metric for a link of the plurality of links is determined based on the first type of node and the second type of node" (emphasis added through underlining) and "a total connectivity metric for each of the plurality of routes based on the calculated connectivity metric for the plurality of links defining each of the plurality of routes" is determined. According to Claims 42, 57, and 64, "the total connectivity metric of a route of the plurality of routes comprises identifying a maximum connectivity metric of the plurality of links defining the route." Thus, according to Claims 42, 57, and 64, the total connectivity metric of a route comprises a maximum connectivity metric of a link of the plurality of links defining the route and not a sum of the connectivity metric of the links defining the route as stated by the Examiner and described in Cain 1.

Therefore, Applicant respectfully submits that Cain 1 and Cain 2, alone and in combination, fail to teach, suggest, or disclose all of the elements of Claims 42, 57, and 64. As a result, Applicant respectfully requests withdrawal of the rejection of Claims 42, 57, and 64 for this additional reason.

III. Rejection of Claims 39, 54, and 61 under 35 U.S.C. § 103(a)

In section 4 of the Office Action, Claims 39, 54, and 61 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Cain 1 in view of U.S. Patent Publication No. 2003/0202468 to Kuhl *et al.* (Kuhl). Applicant respectfully disagrees because Cain 1 and Kuhl, alone and in combination, fail to teach, suggest, or disclose all of the elements of at least independent Claims 36, 51, and 59, from which Claims 39, 54, and 61 depend, respectively.

Kuhl describes a "[m]ethod of prioritising the usage of slotted links by single network devices in a wireless network for adapting to varying traffic loads." (Abstract). Kuhl states:

> Advantageously, a first level of priority distinguishes between master and slave. A binary version of the master/slave concept

> may be sufficient for substantially linear network structures in which for example the main transmission direction may be inverted globally. In flexible network topologies with interconnection in which a single network device can be connected to more than one master, a binary master/slave concept is insufficient. In interconnected network structures a graduated master/slave concept can be applied, in which a slave can refuse an order from a master, if he is occupied with an order from another higher-ranking master. ....

Relative to the priority, Kuhl states that "there is provided a method of prioritising the usage of slotted links by single network devices in a wireless network for adapting to varying traffic loads." (Para. [0010]). Thus, Kuhl describes prioritizing usage of slotted links. In addition, Kuhl teaches the ability to distinguish "between master and slave." (Para. [0013]). However, Kuhl fails to teach, suggest or describe anything related to "selecting a route for communicating information in a communication network." Prioritizing slot usage is not related to selecting a route used to communicate information, but merely to determining a time window in which a device is permitted to communicate.

Therefore, Kuhl fails to describe any calculation of a connectivity metric whatsoever. Further, Kuhl fails to teach, suggest, or describe "calculating a connectivity metric for a plurality of links defining each of a plurality of routes that connect a start node with an end node, ... determined based on the first type of node and the second type of node" as recited in Claims 36, 51, and 59. Thus, neither Cain 1 nor Kuhl teach, suggest, or describe "calculating a connectivity metric for a plurality of links defining each of a plurality of routes that connect a start node with an end node, ... determined based on the first type of node and the second type of node" as recited in Claims 36, 51, and 59. Therefore, Applicant respectfully requests withdrawal of the rejection of Claims 39, 54, and 61, which depend from Claims 36, 51, and 59, respectively.

IV. Rejection of Claim 50 under 35 U.S.C. § 103(a)

In section 5 of the Office Action, Claim 50 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Cain 1 in view of U.S. Publication No. 2005/0226265 to Takatori (Takatori). Applicant respectfully disagrees because Cain 1 and Takatori, alone and in

combination, fail to teach, suggest, or disclose all of the elements of Claim 36 from which Claim 50 depends.

Takatori states:

> According to the first mode of the present invention, the inter-ring connection device can determine a transfer route by judging which ring, the physical ring or the virtual ring, the data to be transferred across between the rings is transferred within. Moreover, when determining this transfer route, it is possible to determine the transfer route taking account of the hop count up to the transfer destination, the total sum of the cost values up to the transfer destination and the congested state of the station existing on the transfer route.

(Para. [0027]). Takatori, however, fails to teach, suggest, or describe "calculating a connectivity metric for a plurality of links defining each of a plurality of routes that connect a start node with an end node, ... determined based on the first type of node and the second type of node" as recited in Claim 36. Thus, neither Cain 1 nor Takatori teach, suggest, or describe "calculating a connectivity metric for a plurality of links defining each of a plurality of routes that connect a start node with an end node, ... determined based on the first type of node and the second type of node" as recited in Claim 36. As a result, Applicant respectfully requests withdrawal of the rejection of Claim 50 which depends from Claim 36.

Applicant believes that the present application is in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

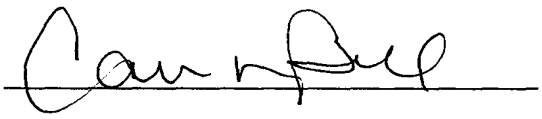
The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely

acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date September 23, 2008

By 

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